

REMARKS

Status of the claims:

With the above amendments, claim 5 has been added. Thus, claims 1 and 5 are pending and ready for further action on the merits. Support for new claim 5 comes from page 7, lines 5-7 and page 10, lines 1-2. Reconsideration is respectfully requested in light of the following remarks.

Double Patenting

Claim 1 was rejected under judicially created obviousness type double patenting over claims 1-3 and 5-7 in co-pending application 09/714,224. Applicants were uncertain if this rejection was still present as no mention was made of it in the Advisory Action of June 12, 2003. However, if it is still present, Applicants respectfully request that this rejection be held in abeyance until one of the applications is ready to issue. At that time, Applicants will file a terminal disclaimer.

Rejections under 35 U.S.C. §103

Claims 1-3 have been rejected under 35 U.S.C. §103(a) as being unpatentable over JP '204 (JP 62-191204) in view of Japan '603 (JP 03-258603) and JP '214 (JP 10-129214) and optionally

further in view of Lucas '211 (US Patent No. 5,967,211) and/or Midorikawa '784 (Canadian Patent No. 2,049,784).

This rejection is traversed for the following reasons.

#### Present Invention

The present invention relates to a studless tire. The studless tire has glass fibers or carbon fibers having an average fiber diameter of 1 to 100  $\mu\text{m}$  and an average length of 0.1 to 5 mm, which are dispersed in a diene rubber in an amount of 3 to 20 parts by weight based on 100 parts by weight of the diene rubber. The glass fibers or carbon fibers are oriented in such a way in the thickness direction of the tread, that the complex elastic modulus  $E_1$  in the thickness direction of the tread and an elastic module  $E_2$  in the circumferential direction of the tire measured at 25°C satisfy the equation  $1.1 \leq E_1/E_2 \leq 4$ . The hardness of the tread rubber measured at -10°C is 45 to 75 degrees.

#### Disclosure of JP '204

JP '204 discloses a skid-proof tire that is comprised of 5 to 60 parts by weight of an anti-slip agent such as organic fibers, glass, carbon, ceramics, or metal, which is blended in with 100 parts by weight tread rubber. The anti-slip agent is exposed to the outer surface of the tread rubber. The anti-slip

agent is composed of short filament-like fibers arranged orthogonal to the outer surface of the tread. The tire reduces dust generation.

#### Disclosure of JP '603

JP '603 discloses a pneumatic tire for driving on icy roads with fiber bundles buried in the tread rubber. The rubber does not penetrate into the bundle core, and the ends of the fibers are exposed on the tread surface. The hardness of the tread rubber is between JIS 45 and JIS 50.

#### Disclosure of JP '214

JP '214 discloses a tire wherein the strength is said to improve by changing the orientation of the short fiber in a rubber block and a base tread. In particular, JP '214 discloses a tread for an off-road tire that comprises a rubber block and a base tread. The short fiber (in the rubber composition to constitute the tread) is oriented in the radial direction from the center of a tire in the rubber block, and oriented in the circumferential direction of the tire in the base tread. The strength in the circumferential direction of the tread for the off-road tire to be obtained is increased by arranging the short fiber in the base tread in the circumferential direction of the tire. The chunking resistance and the edge chipping resistance

of the rubber block are improved by arranging the short fiber in the rubber block in the radial direction (Z-axis direction) from the center of the tire. The rubber composition used in the tread for any regular tire may be acceptable.

**Disclosure of Lucas '211**

Lucas '211 discloses a tire with a rubber tread reinforced with silica and containing one or more additives designed to aid ice traction for the tread. The additive is selected from at least one of (i) at least one organic fiber having hydroxyl groups on the surface thereof selected from cellulose fibers and wood fibers and (ii) small, hollow, spherical ceramic particles having silanol groups on the surface thereof. The rubber is composed of at least one or more diene-based sulfur vulcanizable elastomers having a Tg of less than  $-30^{\circ}$  C and containing silica as the predominant particulate reinforcement and other traditional rubber compound ingredients. In particular, a coupler is used to couple the silica as well as the said additive(s) to the elastomer(s) in the tire tread composition.

**Disclosure of Midorikawa '784**

Midorikawa '784 discloses a studless pneumatic tire which comprises a tread compound formed from a cellular rubber and short fibers of a specified average length and a specified

average diameter distributed and specifically oriented within the cellular rubber, which has a selected set of physical properties.

Removal of the Rejection over JP '204 in view of JP '603 and JP '214 and optionally further in view of Lucas '211 and/or Midorikawa '784

In the Advisory Action of June 12, 2003, the Examiner has indicated that the 37 CFR §1.132 declaration submitted with the reply of May 28, 2003 is not commensurate in scope with the claims.

First, the Examiner asserts that there are no process steps present in the product of claim 1. Applicants have added a product by process claim (claim 5), which indicates how the product is made. However, regarding claim 1, Applicants respectfully point out that the fibers in the tire tread are oriented in such a way that the ratio of E1/E2 falls within a certain range. This ratio is partially process dependent. Thus, in essence, because claim 1 claims an element that is partially dependent on the way the product is made, Applicants submit that the scope of the claim is commensurate with the 37 CFR §1.132 declaration submitted with the response of May 28, 2003.

Moreover, the examiner asserts that claim 1 fails to require the tread to have been made by rolling a specified rubber composition by a calendar roll and repeatedly folding it. Applicants respectfully point out that the preparing process in Example 1 of the present specification and the experiment of the declaration submitted with the response of May 28, 2003 is one in which the fibers are oriented in a thickness direction in the tread.

The present invention is related not to the tire prepared by a specified process but rather relates to a tire wherein the specified fibers are dispersed in a diene rubber in such a way that the fibers are oriented in a thickness direction of a tread and E1 and E2 satisfy the specified equation, and the tire has the specified hardness.

The Examiner also asserts that the declaration submitted with the response of May 28, 2003 is not commensurate in scope with claim 1 because of the length of the fibers. In particular, the Examiner points to Example 1 in the specification having a braking performance of 125 and abrasion resistance of 100 (which has an average fiber length of 0.5 mm) and compares it to Experiment 2 in the declaration submitted with the response of May 28, 2003 with a braking performance of 92 and abrasion resistance of 99 (which has an average fiber

length of 0.3 mm) and asserts that the only difference is in the length of the fibers. However, Applicants respectfully point out that the E1/E2 ratio in Experiment 2 in the declaration is not within the scope of the claims. Moreover, and more importantly, Applicants point out that the fiber length defined in claim 1 is not the length before dispersing the fibers but is the length of the fibers after dispersing.

Applicants also respectfully point out that some elements of the claim can be met by inferior compositions, however, it is only when all the elements of claim 1 are met that the composition is able to make a tire that is superior. In other words, there are a whole series of factors, which give the instant invention its superior braking ability and abrasion resistance. These elements are claimed in claim 1. In other words, the tire of Experiment 2 in the declaration submitted with the response of May 28, 2003 does not have the superior characteristics of the instant invention. None of JP '204, JP '603, JP '214, Lucas '211 or Midorikawa '784 have a sufficient disclosure to realize that all of these elements as claimed in claim 1 are important to generating the superior tire of the instant invention.

Accordingly, Applicants submit one cannot arrive at the instant invention by using JP '204 in view of JP '603 and JP

'214 and optionally further in view of Lucas '211 and/or Midorikawa '784 because these cited references simply fail to provide either the requisite motivation needed or the direction of how to modify the references to arrive at the instant invention. The rejection is inapposite. Withdrawal of the rejection is warranted and respectfully requested.

With the above remarks and amendments, it is believed that the claims, as they now stand, define patentable subject matter such that a passage of the instant invention to allowance is warranted. A Notice to that effect is earnestly solicited.

If any questions remain regarding the above matters, please contact Applicant's representative, T. Benjamin Schroeder (Reg. No. 50,990), in the Washington metropolitan area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any



additional fees required under 37 C.F.R. §§ 1.16 or 1.17;  
particularly, extension of time fees.

Respectfully submitted,

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